



## The Ocean Cleanup takes on the Great Pacific Garbage Patch

History is in the making as the world's first passive ocean cleaning system passes under the iconic Golden Gate Bridge on its way to rid the Great Pacific Garbage Patch of its 1.8 trillion pieces of plastic.

Published 13 September 2018

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The Ocean Cleanup was set up in 2013 to rid the world's oceans of plastic. Based on the idea and vision of Boyan Slat when still a teenager, record-breaking crowdfunding, government backing and a highly dedicated and professional team, have resulted in the world's first passive ocean clean-up system. The launch of the 001 system, otherwise known as "WILSON", made history on 8 September 2018 as it was towed under the Golden Gate Bridge on its way to the Great Pacific Garbage Patch. Boyan Slat said that it was amazing to finally see the system in the water, which until now had only been seen in computer simulations and artists' impressions.

The Great Pacific Garbage Patch contains 1.8 trillion pieces of plastic, equivalent to 250 pieces of plastic for every human being on earth. The plastic weighs 88,000 tons - the same weight as five hundred 747 airplanes - and the area is twice the size of Texas. It would take around 79,000 years to scoop up the plastic with nets from ships. The Ocean Cleanup's research shows that 92 per cent of the plastic mass in the Pacific Patch is more than 5mm in size. Unless these larger pieces of plastic are removed, they will degrade into dangerous microplastics and the ocean plastic problem will only get worse. The [UNEP\\_Plastic.pdf](#) that the approximate environmental damage caused by plastic to marine ecosystems represents USD 13 billion.

Coastlines are very effective ways of accumulating ocean plastic, but in vast ocean garbage areas there are none. In very simple terms, Boyan Slat's idea was to build artificial coastlines in these areas to catch the plastic. Each clean-up system comprises a 600m long floater, about 1.2m wide, with a 3m tapering skirt below the surface. The floater provides buoyancy to the system and prevents the plastic from flowing over it, while the skirt stops debris from escaping underneath. When it is not under tow, natural forces bend it into a U-shape and move the system faster than the plastic, allowing the plastic to be captured in the centre of the system. It is powered purely by solar panels, which run the instrumentation, sensors, lights and AIS onboard. During the next few weeks, there will be further testing and data analysis, followed by full scale implementation into the Great Pacific Garbage Patch. In time, up to 60 clean-up systems will be deployed to the Pacific Patch.

The chances of a ship coming across a clean-up system are minimal as vessel traffic is not dense in the area. Each system is fitted with lanterns, radar reflectors, navigational signals, GPS and anti-collision beacons. AIS will continuously broadcast the systems' locations to passing vessels and GPS tracks their location. The US Coast Guard will chart the area as a special operations zone and will issue a Notice to Mariners concerning the presence of the systems. The floater systems have no clearly defined status under international maritime regulations. Under Dutch law, they largely fall within the definition of a seagoing vessel and by special agreement with the Dutch government, the systems have a status similar to seagoing vessels. This provides clarity on the rights and obligations of The Ocean Cleanup towards the maritime industry, safety and the environment and "WILSON" is currently the only Dutch-flagged autonomous vessel.

The Ocean Cleanup's goals complement Gard's work with the UN for sustainable development in the oceans. Gard has been discussing how we can help The Ocean Cleanup with insurance cover since Boyan Slat spoke at Gard's Summer Seminar in 2016. This spring we provided P&I insurance for the testing of the clean-up system and we are delighted to continue our support for The Ocean Cleanup's valuable work.

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with cover for 001/Wilson and future systems. The contribution by Gard provides liability insurance for 001/WILSON operations.

Boyan admits that he has had doubts and incredible hurdles to overcome at times. It is easy to connect the dots in hindsight, but an ocean clean-up system has never been built before, so it is just like developing the first ever car he says. The conceptual challenge was the biggest - every single detail has changed over last five years. Yet the basic principles of working with nature, having a passive system and building an artificial coastline have remained the same. He paid tribute to his highly motivated and super creative team which have got The Ocean Cleanup to this point. "The next few months will be super tense, what I am most looking forward to is bringing the plastic back to shore, that will be the proof that the technology works". He admits that he cannot say for sure that it will work - there is inherent uncertainty in testing models as well as in computer simulations. His biggest concern is how efficiently the system can collect the plastic, particularly the smallest pieces of plastic, and this is the the area he will be monitoring most closely.

Boyan Slat is still only 24 years old, and during his journey, some people told him that he could not clean up the oceans, but he did not listen and followed his vision. If all goes to plan, the systems will have removed half of the plastic in Great Pacific Garbage Patch by 2023 and 90 per cent of all ocean plastic by 2040. Boyan says that he hopes the Ocean Cleanup will set an example of how it is possible to solve a problem. Fortunately for the rest of the world, he also hopes to work in the future with other challenges, besides plastic pollution.

Further information is available on the [The Ocean Cleanup website](#) and in our previous Gard Insights

[Seas of plastic: The Ocean Cleanup](#)

[The largest ocean cleanup in history to start in 2018](#)

*Remember International Beach Cleaning Day on 15 September 2018! Gard employees around the world as usual will be taking part in coordinated Gard Our Oceans beach-cleaning activities*

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